NOTES

THE President and Council of the Royal Society have this year awarded the Copley Medal to Franz Ernst Neumann, of Königsberg (For. Mem. R.S.), for his researches in theoretical optics and electro-dynamics, and the Davy Medal to Jean Charles Galissard de Marignac, of Geneva (For. Mem. R.S.), for his researches on atomic weights. Prof. S. P. Langley was awarded the Rumford Medal for his researches on the spectrum by means of the bolometer. The Royal Medals have, with the approval of Her Majesty, been awarded to Mr. F. Galton and Prof. Guthrie Tait, the former eminent for his statistical inquiries into biological phenomena, and the latter for his various mathematical and physical researches. The medals will be presented at the anniversary meeting on November 30.

MR. CHARLES WILLIAM PEACH, the eminent scientific observer, died in February last, and, not long afterwards, a memorial was addressed to the First Lord of the Treasury, praying that his daughter, Jemima Mary, might, on account of her very slender provision, be placed on the Civil List. The memorial, subscribed by about 140 eminent persons, resulted in a Treasury grant of 200*l.* being sent to Miss Peach, after the expiry of five months. The grant so made being totally inadequate by way of provision, while it fails to denote the high sense entertained of Mr. Peach's scientific services, it has been determined to secure, by private subscription, the means of providing Miss Peach with a permanent annuity. Of the sum necessary to effect this, the Treasury grant of 200*l.* will of course form the nucleus. The Committee believe it is unnecessary to do more than allude to Mr. Peach's more conspicuous services. For half a century he gratuitously supplied to contemporary inquirers the fruits of his research. When Mr. Hugh Miller was engaged in preparing his work on the "Old Red Sandstone," Mr. Peach conveyed to him those specimens from Caithness which materially availed him in illustrating his subject. By his discovery of Silurian fossils in the rocks of Cornwall, he enabled Sir Henry de la Beche, then at the head of the Geological Survey, to obtain a scientific basis for mapping the rocks of Devon and Cornwall. In connection with this important work, also, by his discovery of Lower Silurian fossils in the north-west of Scotland—thereby affording the key by means of which the structure and age of the rocks of the Scottish Highlands must be determined—it was the opinion of Sir Roderick Murchison that Mr. Peach had rendered service such as merited a special recompense from his country. From the Devonian rocks of Cornwall and the Old Red Sandstone of the north of Scotland he procured the fish fauna which supplied a share of the material used by Sir Philip Egerton, Prof. Huxley, and Prof. E. Ray Lankester in preparing their several descriptions. In their monographs, Mr. Darwin and Dr. Carpenter have acknowledged his valuable contributions to a knowledge of the Balanidæ and the Polyzoa, while many other naturalists were also indebted to him for most important zoological observations made along our coasts. Mr. Peach made a valuable collection of the fossils of Brora, Sutherlandshire (Jurassic), now in the British Museum. His discoveries have largely availed in elucidating the fossil flora of the Old Red Sandstone and the Carboniferous rocks of Scotland. In the department of recent marine animals and plants, he has added hundreds of new species to the British lists. In acknowledgment of his scientific acquirements, he received honours from the leading scientific Societies; and in 1875 he was awarded by the Royal Society of Edinburgh one of their gold medals. After twenty-one years of arduous labour in connection with the Coastguard, Mr. Peach was in 1845 transferred by Sir Robert Peel to the Department of Customs, as suggested by the Council of the British Association; but this change, while adding to his leisure, did not materially enhance his emoluments. In the public service his highest income was 150*l.*, his retiring allowance being 130*l.* Such remuneration as he received for his scientific services he applied exclusively to the cause of research. He attained his eighty-fifth year, and in his old age it was a source of deep anxiety to him as to how he should be able to provide for the devoted daughter to whose help and affectionate care he was so much indebted. Five hundred pounds are wanted, and this amount there ought not to be much difficulty in procuring. An account is opened in the Bank of Scotland, for the receipt of contributions, under the care of Mr. Robert Gray, Bank of Scotland, Edinburgh, as Treasurer of the fund. Among the members of the Committee are Sir William Turner, F.R.S.; Sir Joseph D. Hooker; Archibald Geikie, F.R.S., Director-General of the Geological Survey of Great Britain and Ireland; Prof. E. Ray Lankester, F.R.S.; Prof. Tait; John Murray, V.P.R.S.E., Director of the *Challenger* Expedition Commission, Edinburgh; William Pengelly, Torquay; and others.

OUR readers must have noticed the recent telegrams concerning the beleaguered position of Dr. Emin Bey at Wadelai, on the Upper Nile, some 50 miles north of Lake Albert Nyanza. Emin Bey was Governor of the old Equatorial Province of Egypt, and his administration of the province was of a model character. Moreover, he did much before the Mahdi insurrection broke out for the promotion of a knowledge of the natural history and geography of the Upper Nile region, as will be seen from his many communications to *Petermann's Mitteilungen*. His last communication is in the current number of the *Mitteilungen*, and is dated January last. In it, notwithstanding his critical position, he speaks of his collections. When the news of Emin Bey's position first reached this country, the Government regarded it as their duty to do what they could to rescue or succour him, and the Intelligence Branch of the War Office made all inquiries as to routes, among other things taking counsel with Mr. Joseph Thomson. There are many difficulties in the way, especially since the death of Mtesa, King of Uganda; but the Government, we believe, have by no means given up the idea of communicating with Emin Bey. Mr. Stanley has expressed his willingness to lead an expedition, and Mr. Thomson shows, in yesterday's *Times*, how the thing can be done. He believes rightly that the route across Masai Land followed by himself is the directest and shortest, and it is really not necessary to pass through Uganda at all; a sweep could be made round by Lake Baringo and the Suk country, and so westwards 300 miles to Wadelai. Moreover, it seems to us that the route by the west side of the Victoria Nyanza on to the Albert Nyanza is worthy of consideration. Certainly, if Mr. Thomson undertakes to lead a relief expedition, he could accomplish it speedily and peacefully. The English Government is bound to do everything in its power to prevent any disaster falling upon so valuable a life; and if they mean to do anything it ought to be quickly, or else it may be too late.

M. PASTEUR, according to the *Times* Paris Correspondent, exhausted by the incessant labours of the last few years, was to leave on Tuesday, by the advice of his family and friends, for Bordighera, where M. Bischoffsheim has placed his villa at his disposal. The *Times* Correspondent, before his departure, ascertained from M. Pasteur the precise state of the Pasteur Institute subscription and of his experiments. The subscription has now nearly reached 1,800,000f., but contributions still flow in, though rather more slowly, and M. Pasteur has reason to hope that we shall eventually reach the sum required. The Paris Municipality has given a gratuitous lease for 99 years of 2500 metres of ground, the site of the old Collège Rollin. This area being insufficient for the laboratories, not merely for rabies, but for other contagious maladies, he has asked for a lease for 99 years of 2500 metres adjoining, and he expected that this proposal would be acceded to at Monday's sitting. A subscription is being raised among the brewers in England. M. Pasteur then goes on in his communication to describe the results of his operations much in the same terms as in his paper to the Paris Academy epitomised in a recent number of NATURE.

THE following are among the lectures to be given at the London Institution, during 1886–87:—Sir R. S. Ball, F.R.S., Astronomer Royal of Ireland, two lectures on "The Astronomical Theory of the Great Ice Age," one given last Monday, the other for November 29; Prof. E. Ray Lankester, F.R.S., six lectures on "The Elements of Biology," Thursdays, November 25, December 2, 9, 16, 23, 30; Prof. T. W. Rhys Davids, Ph.D., "Buddhism," Monday, December 13; Henry Seebohm, "Birds' Nests and Eggs," Monday, December 20; Eric S. Bruce, "War and Ballooning," Monday, December 27; Dr. C. Meymott Tidy, F.C.S., three lectures (juvenile) on "Chemical Action," Thursdays, January 6, 13, 20; Prof. W. H. Flower, F.R.S., Director of the Natural History Department, British Museum, "Fins, Wings, and Hands," Monday, January 17; Prof. Silvanus Thompson, Ph.D., two lectures on "Electric Bells," Thursdays, February 10, 17; Harold B. Dixon, F.R.S., "The Lighthouse Experiments at the South Foreland," Thursday, February 24. The Thursday lectures will be given at 6 o'clock, excepting on January 27, February 3, March 3, and March 10, when they will be given at 7 o'clock. The Monday lectures are at 5 p.m.

GENERAL J. F. TENNANT sends us the following additional information on the late Major-General John Theophilus Boileau, whose death we announced last week:—"General Boileau was selected to superintend one of the magnetic observatories established by the Honourable East India Company in 1843 in connection with the general scheme of magnetic observatories, and had charge of the Simla Observatory. Long after it was closed for observing purposes he was employed in reducing and publishing the results. He also published a collection of astronomical, magnetical, and meteorological tables, and a set of traverse tables; and possibly some special tables, which, being published in India, have never come into much use, and have practically been superseded by others more recent. General Boileau has long been annually appointed one of the Scrutators at the anniversary meeting of the Royal Society on St. Andrew's Day, and we shall miss there on Tuesday a familiar face and name. His energies and time have long been absorbed in institutions for helping those in want, especially the daughters of officers of the army and soldiers. And now his, in turn, want aid, which an influential Committee is endeavouring to raise for them. Will you lend the aid of your circulation to make known the want among those who can spare?"

WITH reference to the above note we heartily commend to our readers the proposal to raise by public subscription a testimonial in recognition of the devotion displayed by General Boileau over a long period of years in philanthropic works, especially those so ably and successfully carried out by him on behalf of the Royal School for Daughters of Officers of the Army at Bath, and the Soldiers' Daughters' Home at Hampstead. An influential Committee has been formed for giving effect to the proposal, with Field-Marshal the Lord Napier of Magdala, G.C.B., G.C.S.I., R.E., as Chairman, and Major-General Philip Ravenhill, C.B., as Honorary Secretary. It is contemplated that the amount collected will best be expended in purchasing annuities for certain members of General Boileau's family, who are at his death left in very straitened circumstances. The Committee appeal not only to those who are, or have been, connected with either of the two institutions above named, but also to General Boileau's numerous friends and acquaintances, to aid them in attaining the object they have in view. Subscriptions will be received by Messrs. Cox and Co., Craig's Court, London, S.W., by the Honorary Secretary, 50, Holland Road, Kensington, W., or they may be paid to any member of the Committee.

THE *Methodist Times* announces the formation of a "Wesley Scientific Society" for the purpose of promoting intercourse among Wesleyan students of science. It will aim at the encouragement of practical scientific work among amateurs, the guidance of beginners in the study of natural history, the interchange of opinions upon scientific questions, and the collection and circulation of useful facts and observations bearing upon the sciences in general. If sufficient support is promised, the first number of a monthly journal will be issued by next March. The President is the Rev. W. H. Dallinger, F.R.S., and the Secretary is the Rev. W. Spiers, M.A., F.G.S. The Vice-Presidents are Rev. G. Bowden, Rev. N. Curnock, A. C. Graham, M.A., C. W. Kimmins, D.Sc., J. Potts, F.G.S., and Rev. G. S. Rowe. The Rev. Dr. Dallinger, Rev. W. Spiers, and Rev. Hilderic Friend, F.L.S., will edit the Society's journal.

THE great refracting telescope of the Bischoffsheim Observatory is in full operation at Nice. It is second only to the Pulkowa instrument. Observations with it have been conducted most successfully.

ADMIRAL MOUCHEZ, Director of the Paris Observatory, has issued circulars in the name of the Committee for erecting to François Arago a statue on the southern part of the meridian line which passes through that establishment. Subscriptions are received at the Observatory by M. Mouchez. A sum of about 400*l.*, which had been collected for a similar purpose when Arago died thirty-two years ago, is in the hands of the Paris Academy of Sciences, and will be placed at the disposal of the Committee.

IT is stated that a subscription will be started at Auxerre, the native place of M. Paul Bert, for erecting a memorial on his behalf.

LAST week a boat containing fourteen persons was successfully worked on the Seine with artificial wings acting on the air, and propelled by a rotating wheel.

DR. FOREL informs us that earthquakes occurred in Switzerland on the following dates:—At Cernetz, Grisons, November 6, 17h. 44m., and at 19h. 59m.; November 7, at 1h. 28m.; over Switzerland, with centre in the Lake of Lucerne, on November 16, 2h. 15m. (all Greenwich times).

WE have received from Mr. J. White, photographer, of Littlehampton, a copy of the last portrait (cabinet) taken of the late Prof. Guthrie. It is a very good one.

DR. R. MULLINEUX WALMSLEY, D.Sc., Senior Demonstrator at the Finsbury Technical College, in the department of Applied Physics and Electrical Engineering, has been appointed Principal of the Technical College about to be established at Kurrachee.

THE decline of the Indian silk industry is a subject which has lately attracted some attention. Various causes have been assigned, such as rack-renting by the Zemindars, while the existence of any specific disease among the silkworms has been strenuously denied. The question seems at last to have been settled by the investigations of a skilled entomologist, Mr. Wood Mason, Curator of the Indian Museum, who, on examining a large number of living cocoons, received from various parts of the country, found over 60 per cent. so diseased that no moths emerged, while such moths as emerged were nearly all sickly and crippled, and only 6 per cent. lived to couple and lay eggs. A further examination showed that the cells of the silk glands, and all other tissues, including even the blood, were in the last stage of disease, and literally crammed with minute corpuscles, identical with those which have been demonstrated to be the cause of the fibrine disease which, in an epidemic form, from 1849 to 1865 ravaged the silkworm nurseries of France, and reduced them to a state of ruin, but which, thanks to M. Pasteur, is now practically eradicated from Europe.

PROF. GIOVANNI LUVINI has just issued, in pamphlet form, a summary of the results of his important experiments on the electric conductibility of vapours and gases. As the readers of NATURE are already aware, these experiments have finally exploded the old theory that the moist atmosphere and other vapours are good conductors. The pamphlet, which is published in Florence, includes an historical survey of the subject, and a full account of the processes adopted by the author. Electricians are reminded that this essay, together with his previous treatise on atmospheric electricity, are merely preparatory to a comprehensive work on the phenomena connected with the aurora borealis, which is now nearly completed.

LIGHTNING-FLASHES have sometimes been observed which, starting from one point, have ended in several. Some remarkable forms of flash have been lately described by Herr Leyst, of Pawlowsk Observatory. In one case a flash went a certain distance in a north-easterly direction, then divided, the two branches forming an angle of about 75°. When these had reached about 35° from each other, they turned and united again to one line. The path of the lightning thus formed a quadrilateral figure. It was further observed that the lightning flashed back in the same path, as if there were an oscillating discharge. In another interesting flash, the path was not a crooked line but a wavy band, which was lit up four times in succession with equal brilliancy. The time between the second and third and the third and fourth flashes seemed longer than that between the first and second. The thunder which followed lasted about 80 seconds.

THE additions to the Zoological Society's Gardens during the past week include a Patas Monkey (*Cercopithecus patas* ♀) from West Africa, presented by Capt. T. W. Robinson; a Puma (*Felis concolor* ♂) from El Gran Chaco, presented by Mr. Alfred Grenfell, F.Z.S.; a Malayan Bear (*Ursus malayanus*) from Malacca, presented by Miss A. Stewart Saville; a —— Souslik (*Spermophilus* ——) from California, presented by Mr. B. F. Russell; a Gazelle (*Gazella dorcas* ♂) from Barbary, presented by Edward J. Hough; four Chukar Partridges (*Caccabis chukar*) from Persia, presented by Dr. J. Huntley; a —— Toad (*Bufo* ——) from Africa, presented by Mr. E. N. Wroughton; six Roseate Cockatoos (*Cacatua roseicapilla*), seventeen Cockateels (*Calopsitta novæ-hollandiæ*), six Swainson's Lorikeets (*Trichoglossus novæ-hollandiæ*), two Red-winged Parrakeets (*Aprosmictus erythropterus*), eight Chestnut-eared Finches (*Amadina castanotis*), two Peaceful Doves (*Geopelia tranquilla*) from Australia, a Nutmeg Bird (*Munia punctularia*), two Eastern Turtle Doves (*Turtur meena*) from India, three Magpie Tanagers (*Cissopis leveriana*), two Red-crested Cardinals (*Paroaria cucullata*), a Red Ground-Dove (*Geotrygon montana*), a Yarrell's Curassow (*Crax carunculata*), a Crested Curassow (*Crax alector*) from South-East Brazil, two Hawfinches (*Coccothraustes vulgaris*), British, deposited.

OUR ASTRONOMICAL COLUMN

THE MASS OF MERCURY.—In the *Bulletin Astronomique* for October Herr Backlund has published a new determination of the mass of Mercury deduced from the perturbations produced in the motion of Encke's comet arising from its close proximity to the planet in 1878. From the apparitions of the comet in 1871, 1875, 1878, 1881, and 1885, Herr Backlund finds the reciprocal of the mass of Mercury to be 2,668,700,—thus making the mass of the planet considerably larger than has been found by recent investigators. And Herr Backlund states that, even supposing the acceleration of the comet's mean motion to have been constant during the entire period 1871–85, it is not possible to represent satisfactorily the five apparitions of the comet during that period on the assumption that the reciprocal of the mass of Mercury is greater than 5,000,000.

THE NATAL OBSERVATORY.—Mr. Neison has issued his Report, as Superintendent of the Natal Observatory, for the year 1885. The staff of the Observatory consists of the Government Astronomer, an Astronomical Assistant, and a Meteorological Assistant. Four ladies have also been employed during the year as astronomical computers. The equatorial appears to have been but little used in 1885, all the astronomical observations recorded having been made with the 3-inch transit. The total number of observations made with this instrument was 706, including transits of stars, of the sun, of the moon's limb, of the lunar crater Murchison A, and observations of zenith stars for latitude. With regard to the latter class of observations, it is proposed to determine the latitude of the Observatory with the greatest care, as one of the primary points of the geodetic triangulation of South Africa. Forty pairs of stars have been selected for this purpose, mostly differing in zenith distance by not more than 3′ or 4′. Also, with the view of better connecting the fundamental declinations of the star catalogues of northern and southern observatories, arrangements have been made for comparing, by Talcott's method, the zenith distances of a number of southern circumpolar stars with suitably placed northern stars of corresponding zenith distance. A list of thirty-two stars has been prepared for this purpose. Mr. Neison also reports on the state of his own work on the lunar theory, which he appears to consider of an official character.

COMET FINLAY (1886 *e*).—The following ephemeris of this object is by Dr. A. Krueger (*Astr. Nachr.*, No. 2755):—

For Berlin Midnight

1886	R.A. h. m. s.	Decl. ° ′	log *r*	log Δ	Brightness
Nov. 28	21 0 50	19 10·7 S.	9·9941	9·9142	3·0
30	21 10 58	18 20·4			
Dec. 2	21 21 12	17 27·2	9·9971	9·9060	3·1
4	21 31 30	16 31·0			
6	21 41 53	15 31·9	0·0016	9·8992	3·1
8	21 52 20	14 30·0			
10	22 2 49	13 25·6 S.	0·0074	9·8941	3·1

The brightness at date of discovery is taken as unity.

COMET BARNARD (1886 *f*).—The following ephemeris of this object for Berlin midnight is by Dr. Oppenheim (*Dun Echt Circular*, No. 130):—

1886	R.A. h. m. s.	Decl. ° ′	log *r*	log Δ	Brightness
Nov. 27	14 34 10	16 50·4 N.	0·0029	9·8864	17·8
29	14 54 42	17 23·5			
Dec. 1	15 16 12	17 46·0	9·9879	9·8640	21·2
3	15 38 23	17 56·0			
5	16 0 54	17 51·8	9·9839	9·8448	23·6
7	16 23 24	17 33·0			
9	16 45 27	17 0·1 N.	9·9920	9·8303	24·3

The brightness at date of discovery is taken as unity.

GORE'S NOVA ORIONIS.—It seems to be clearly established that this interesting star is indeed—as was from the first suspected from the character of its spectrum—a simple variable, and not one of the class to which the title "temporary" can be fitly applied. M. Dunér, who had observed the star at intervals from last December to the end of April, found (*Astr. Nachr.*, No. 2755), on renewing his observations at the end of October and the beginning of the present month, that it had unmistakably increased in brightness in the interval, and was continuing to do so. Herr Fr. Schwab and Mr. Espin confirm this conclusion, the former having observed this star early in last July, and found it then fainter than the 12th magnitude. Its period would appear to be not far from one year; Herr Schwab gives it as one or two weeks longer than a year, and as ranging in brightness from 6m. to 12½m., whilst M. Dunér assigns a period of 359·5d. to it. It is clearly of importance that it should be carefully watched during the coming winter.